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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,875	09/23/2003	Sean Christopher Erickson	03-1091	3616

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LSI Logic Corporation
Legal Department - IP
MS D-106
1621 Barber Lane
Milpitas, CA 95035

EXAMINER

EASTHOM, KARL D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,875

Applicant(s)

ERICKSON ET AL.

Examiner

Karl D Easthom

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 10-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2832

1. Applicant's election with traverse of Group I, claims 1-9 in the reply filed on 10/26/4 is acknowledged. The traversal is on the ground(s) that the inventions are not distinct. This is not found persuasive because the reasons for distinctness were noted, and incorporated here for brevity.

The requirement is still deemed proper and is therefore made FINAL.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by Gray (6087193). or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gray (6087193) in view of Hayama (5260595). Gray discloses the claimed subject matter at Figs. 26 with first and second contact regions 137, 138, substrate the P substrate, the diffusion region in the EPI layer, first, second and third contacts 140, 150, 180. The Schottky diode or barrier is 157. The depletion region and change in resistance is disclosed at col. 8. In claim 5, the contacts are n+. In claim 6 the metal is seen as hatched metal. Diffusion is disclosed in general at col. 8, lines 50-62, or col. 10, lines 1-15, as a method for forming the devices so that diffusion is contemplated for the regions at Fig. 26 to form a diffusion resistor. Also, the contact regions noted above are diffusion regions rendering the diffusion resistor preamble met since no diffusion resistive region is positively recited in the claim body to "breathe life and meaning" into the preamble. As an alternative, where the device preamble of diffusion resistor is not met, Hayama discloses diffusion resistors to minimize the effects of radiation noise at cols. 1-2 generated in the depletion region, so that it

Art Unit: 2832

would have been obvious to employ a diffusion resistor where the depletion type resistors are disclosed in both references and diffusion is well known as one method of forming semiconductor type resistors.

4. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray (6087193) (with Hayama above as necessary), in view of Bhatia et al. (4426655). Gray discloses the claimed invention as noted above except the tungsten metal and p-type substrate. Bhatia discloses at top of col. 3 using many metals including tungsten as useful for forming Schottky diodes as having the correct barrier so that it would have been obvious to employ that metal where Gray discloses metal contacts in general. Bhatia at Fig. 1 and Gray at Fig. 25 each discloses p-type substrates for forming variable resistors so that it would have been obvious to employ the known type of substrate in a semiconductor device where there are limited types, n, p or insulating, etc.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray (6087193) (with Hayama above as necessary), in view of Kluth (6521515). The claimed invention is disclosed as noted except the salicided regions. Kluth at col. 1, lines 30-50 discloses such regions for forming contacts for the purpose of defining the contact regions with a low resistivity so that the method and product thereby would have been obvious.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gray (6087193) (with Hayama above as necessary), in view of Racanelli et al. (5,532,175). The claimed invention is disclosed as noted except the silicon on insulator substrate. Racanelli at col. 1, lines 5-20 discloses a host of advantages for such SOI technology such as increased speed and density

Art Unit: 2832

and reduced process steps for forming such devices so that such as substrate would have been obvious.


7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray (6087193) (with Hayama above as necessary), in view of Yu (2004/0075146). The claimed invention is disclosed as noted except the doping levels. Yu discloses at par. 37 that typical doping levels for contacts labeled N+, and N regions are in the claimed range in order to render the contact regions and resistive regions correctly conductive such that such levels would have been obvious where Gray employs the similarly labeled N and N+ regions obvious to one of skill in the art as higher and lower concentrations as noted. For claim 8, "about 1E15" is met by 1E16 or rendered obvious thereover since a lower concentration obviously renders a higher resistance, where P levels are disclosed by Yu in the claimed range and N indicates or suggests a lower doping level than N+.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl D Easthom whose telephone number is (571) 272-1989. The examiner can normally be reached on M-Th, 5:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2832

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karl D Easthom
Primary Examiner
Art Unit 2832

KDE